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THE INSECT PEST SURVEY BULLETIN

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Summary for 1923

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INTRODUCTION

The year 1928 as a whole was not one of strikingly abnormal weather conditions. January was characterized by the strong cold wave that during the first few days of the month extended from the plateau region eastward. The month as a whole, however, was above normal in temperature with the exception of the South Atlantic and Gulf coastal plains. There was a general deficiency during this month in precipitation with large areas without snow-cover. February was free from severe weather and the mild temperature continued over the greater part of the country. Precipitation remained below normal with increasingly large areas without snow-cover. These conditions prevailed during March.

April brought decided change in the weather. This month was characterized by persistent cold and frequent late killing frosts. Precipitation was abundant and very excessive in the Southeastern States. During May the temperature was uniformly above normal in the western two-thirds of the United States and below normal in the eastern third. Precipitation was generally deficient.

Very low temperature for June prevailed over the eastern two-thirds of the country. Rainfall was more frequent than during May and in many cases was very excessive. July and August were about normal. The latter month showed excessive precipitation along the Atlantic seaboard and in the upper Mississippi Valley. September will be remembered by the severe tropical hurricane that came in over eastern Florida on September 16. The temperature as a whole was below normal over the eastern two-thirds of the country. The earliest killing frosts in the past fifty years were experienced during late September in the region represented by Louisville, Ky., and Peoria, Illinois. During this month there was a widespread deficiency in precipitation. The remaining months of the year were not unusual. Coupled with these quite normal weather conditions was a year of but few striking entomological developments. Many insects were decidedly below normal and but few reached such peaks as have attracted attention in previous years.

GRASSHOPPERS

During the early months of the year a survey in the Klamath Falls district of Oregon indicated that a serious grasshopper outbreak was to be looked for in the spring. Later developments bore out this prognostication. In the Tule Lake district of California and southern Oregon grasshoppers were numerous enough to occasion extensive control campaigns. In one of these

campaigns 20,000 pounds of arsenic was used and the United States Reclamation Service expended approximately \$12,000 for materials and labor in controlling grasshoppers on their holdings. In the Great Plains region in Western Kansas and Nebraska, similar indications of serious trouble were noted very early in the season. As the season advanced the outbreak materialized and rather serious depredations were suffered. Later in the season considerable trouble was experienced over the greater part of Kansas and Missouri, and late in the fall these insects were numerous enough, particularly in the western part of their range, to threaten the newly seeded wheat and to indicate the probable occurrence of a large brood of hoppers next spring. As a whole, however, the year was not one of very serious grasshopper depredations.

MORMON CRICKET AND LUBBER GRASSHOPPER

three

In the/northwesternmost counties of Colorado a very heavy outbreak of the Mormon cricket (Anabrus simplex Hald.) occurred and considerable time and money were spent in fighting this insect. The situation is so serious in this region that Federal aid is being sought for its solution. The lubber grasshopper (Brachystola magna Gir.) appeared in a very localized outbreak in northern Florida.

WHITE GRUBS

During late April and early May heavy flights of June beetles (Phyllophaga spp.) occurred in Missouri, and over the greater part of the East Central and West Central States. The flights were not, however, unusually large. On the other hand, white-grub injury was reported quite generally throughout this entire area and isolated reports were received from many points along the Atlantic seaboard. Over the greater part of the East Central States the larvae doing the principal damage were of brood A.

WIREWORMS

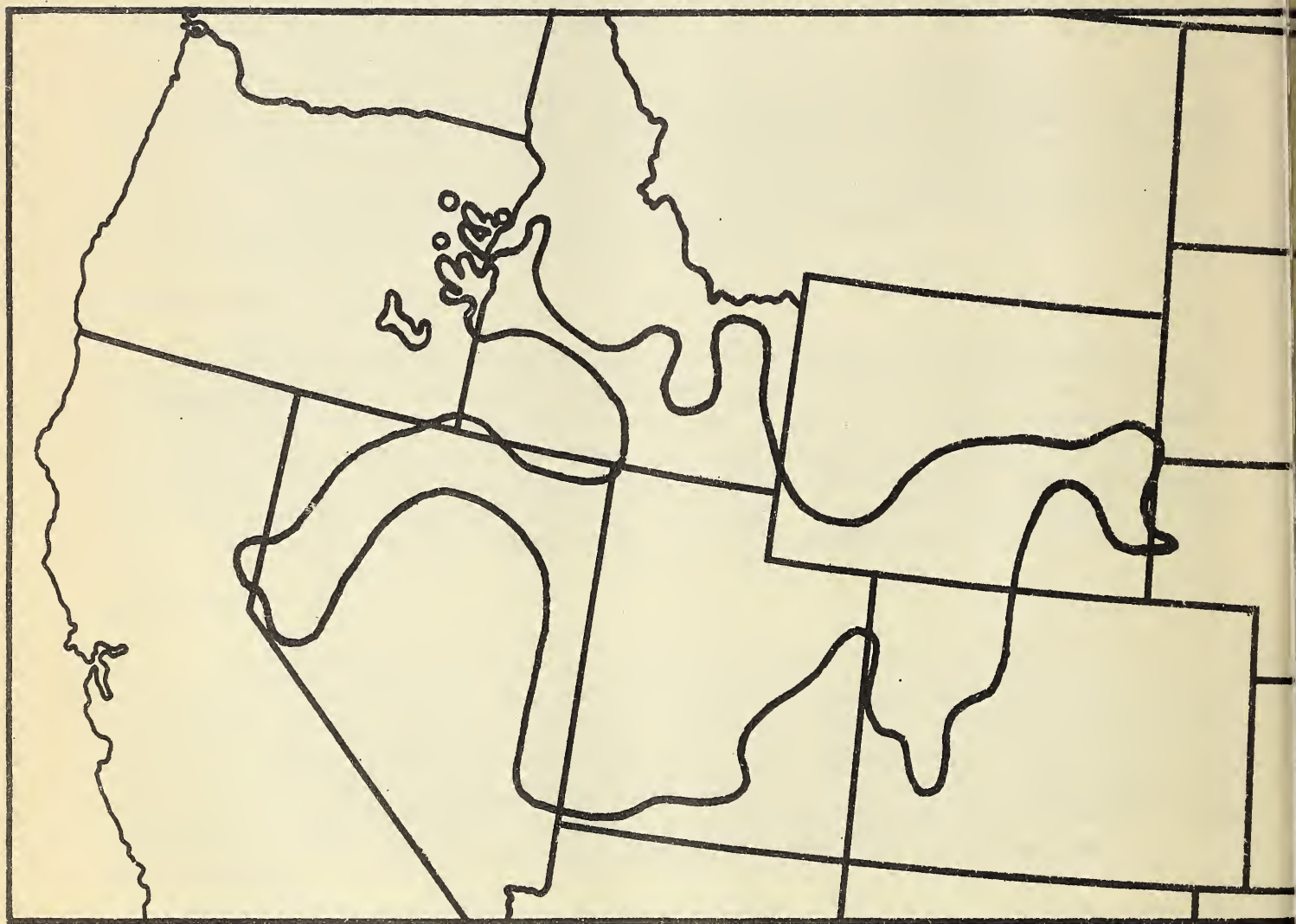
The year was marked as one of very severe damage by wireworms (Elateridae), involving many species and covering practically the entire country east of the Rocky Mountains. Among the species recorded during the year were Monocrepidius vespertinus Fab. from Mississippi, North Carolina, and South Carolina, Melanotus pilosus Blatch. from Nebraska, Pheletes agonus Say from Pennsylvania, Horistonatus uhleri Horn from South Carolina and Mississippi, and Heferoderes laurentii Guer. from Alabama and Mississippi.

CUTWORMS

Injury by cutworms (Noctuidae) was less prevalent over the New England, South Atlantic, East Central, and North Central States than during 1927, with the exception of a localized outbreak in the trucking section about Chadbourn, N. C. Late in June a rather serious outbreak developed in the overflowed land in Arkansas, and in July a similar outbreak occurred on overflowed land in the north Willamette River Valley in Oregon. The pale western cutworm (Porosagrotis othogonia Morr.) occurred in threatening numbers in parts of North Dakota.

ALFALFA WEEVIL

Known distribution to September, 1928



PLAINS FALSE WIREWORM

The plains false wireworm (Eleodes opaca Say) did considerable damage in the drier parts of Kansas and New Mexico both early in the spring and on the new seedlings this fall. As a whole, however, this insect has attracted but little attention over the greater part of the semiarid dry-farming country.

ALFALFA WEEVIL

"The alfalfa weevil (Phytonomus posticus Gyll.) has been recently discovered in the following counties: Garfield County, Utah; Adams and Boise Counties, Idaho; Mesa and Garfield Counties Colorado; Lincoln, Humboldt, and Elko Counties, Nevada; and Scotts Bluff County, Nebraska. The injury inflicted by the weevil has been serious in western Nevada, northern Utah, and central Colorado. No serious injury has been reported elsewhere." (Geo. I. Reeves, Bureau of Entomology, U. S. D. A.)

LESSER CLOVER LEAF WEEVIL

Although the lesser clover leaf weevil (Phytonomus nigrirostris Fab.) was apparently as abundant as usual in Ohio and possibly above normal in Illinois, where as high as 84 per cent of the clover heads were found to be infested early in June, nevertheless as a whole but little damage was done to the hay, as the wet season produced a very succulent growth that masked the injury.

FALL ARMYWORM

The fall armyworm (Laphygma frugiperda S. & A.) became very abundant the first week in July. As the season advanced, localized outbreaks were reported from Louisiana and Mississippi. No large or extensive outbreaks developed this year.

ARMYWORM

Late in April and during May adults of the armyworm (Cirphis unipuncta Haw.) were found in rather heavy flights in parts of Illinois and Indiana. No outbreak, however, was reported later in the season from these States. Several small outbreaks were reported from Ozaukee and Manitowoc Counties, Wisconsin, and late in September a very limited brood appeared at Monticello, Ind.

HESSIAN FLY

Early spring surveys indicated that the Hessian fly (Phytophaga destructor Say) was seriously infesting wheat in the central and southern counties of Kansas and in parts of Oklahoma. Very serious injury to wheat in northeastern Virginia was also reported early in the season. Later in the season, however, the situation became more favorable and infestations in general were reported slight to moderate, with the exception of rather serious conditions in parts of Ohio and Nebraska. The midsummer survey indicated that in the East Central States infestations in general were

slight, but that in southeastern Nebraska, central Kansas, and parts of Missouri the fly would do considerable damage. Over much of this territory volunteer wheat was rank and a very considerable part of the crop was planted before the fly-free date.

WHEAT STEM MAGGOT

The wheat stem maggot (Meromyza americana Fitch) appeared in large numbers in Iowa, Nebraska, Kansas, and South Dakota, where it did considerable damage over localized areas.

CHINCH BUG

The situation as regards the chinch bug (Blissus leucopterus Say) is most encouraging. Throughout practically all of its range this insect is at a very low ebb. Slight trouble was observed on St. Augustine grass lawns in Florida and in a small wheat area in Fayette County, Texas.

GREEN BUG

Although early indications from Texas and Oklahoma presaged outbreaks of the green bug (Toxoptera graminum Rond.) no serious trouble developed. Later in the season a few reports were received from part of the green-bug territory. It seemed to occur quite generally during the early summer throughout central Kansas and Nebraska, but no serious damage was sustained. In October this insect was reported as being widely distributed and killing patches of wheat in Benton County, Missouri.

STALK BORER

Although the stalk borer (Papaipema nebris nitela Guen.) was reported from over a considerable part of the East-Central and West Central States, it was much less serious than last year and undoubtedly would have attracted but little attention had it not been for the interest in corn insects occasioned by the advent of the European corn borer.

CORN BILLBUGS

Corn billbugs (Sphenophorus spp.) were unusually abundant this year in a belt extending throughout the central and western counties of Ohio into Indiana, northern Illinois, southern Iowa, and eastern Kansas. This appears to have been the worst billbug year since the organization of the Survey in 1921.

CORN EAR WORM

The year was one of almost unprecedented scarcity of the corn ear worm (Heliothis obsoleta Fab.). With the exception of a few reports very early in the season in the trucking section of the Gulf, reports from practically the entire Corn Belt and northward into the sweet corn areas indicated that but few seasons in the past could be recalled when smaller numbers of this insect were observed.

EUROPEAN CORN BORER

During 1928 the European corn borer (Pyrausta nubilalis Huebn.) in the Great Lakes district is known to have infested territory to include a strip of townships from 10 to 30 miles in width contiguous with the territory known to have been infested last year. Borers were discovered as far as the western edge of ~~LaPorte~~ LaPorte County, Indiana, about 30 miles from the Illinois State line; to the southward as far as the southern limit of Fayette County, Ohio, about 50 miles from the Kentucky State line; to the northward into Mackinac County, Michigan; and to the eastward as far as the Connecticut River Valley in southern Vermont, Massachusetts, and northern Connecticut.

Probably due to reinfestation from neglected districts in Rhode Island, a decided increase in intensity of infestation developed in New England. The spread in this region was of little importance except in eastern and southeastern Connecticut where the borer was discovered in a total of 23 townships immediately adjoining the infested territory.

JAPANESE BEETLE

"During 1927 some evidence was obtained which indicated that the Japanese beetle (Popillia japonica Newm.) was less numerous than in previous years in the areas which have been infested for the longest time. Surveys during 1928 of the abundance of the larvae and adults were to confirm this view. The heavily infested portion of the Japanese beetle's range may be subdivided into four more or less concentric areas or zones.

"The central area, or Zone 1, includes those districts in which the species has been longest established and in which it is now undergoing a reduction in number. This includes portions of Burlington, Camden, and Gloucester Counties in New Jersey and the northern portion of Philadelphia County, adjacent to the Delaware River, in Pennsylvania.

"Surrounding the first zone is an area of 2 or 3 miles in width in which the beetle population is essentially stationary. This includes a zone in New Jersey beginning at Florence in Burlington County and extends in a sweeping curve through Mount Holly, Indian Mills, Berlin, and Sewell, and terminates in the vicinity of Paulsboro in Gloucester County. The same zone in Pennsylvania appears to be quite narrow and includes Bristol, Bustleton, Cheltenham, and the northern environs of Philadelphia.

"The third zone is somewhat more extensive than the second and includes those localities in which the beetle population has recently undergone a marked increase and now represents conditions of maximum abundance. It is limited to a series of detached areas in New Jersey which if connected would form a rather wide area outside of Zone 2. This includes Trenton, Bordentown, Williamstown, Cross Keys, Columbus, Pemberton, and Pitman, in New Jersey. In Pennsylvania it forms a more compact area embracing a series of communities extending from Somerton in Bucks County southeastward through Philmont, Rydall, Jenkintown, Glenside, Germantown, Fairmount Park, and Sharon Hill.

"The fourth zone embraces those areas into which the beetle has penetrated so recently that it has not become more than moderately established, and includes a territory averaging between 3 and 4 miles in width entirely surrounding Zone 3.

" During the season of 1928 Japanese beetles were discovered during the course of the scouting operations at the following points outside of the area under regulation. up to that time. A rather heavy infestation was located in Springfield, Mass., largely confined to two small parks in the center of the city. Slight infestations were discovered at New London, Hartford, and New Haven, Conn., the latter point being just outside the area under regulation. No new infestations were located in New York State. Slight infestations were discovered at Sayre, Lewistown, and Marysville, Pa., the latter point being just outside of the city of Harrisburg and just over the line from the regulated area. Separate infestations were discovered at 11 points in Delaware, for the most part being found in the upper half of the State. The exact points of finding were Port Penn, Middletown, Townsend, Smyrna, Clayton, Dover, Fredericka, Milford, Harrington, Wyoming, and Delmar. In Maryland slight infestations were discovered at Frederick, Hagerstown, Elkton, Perry Point, and Cambridge, and general infestations were found at Chesapeake City, Perryville, and Baltimore. General infestation was found in the city of Washington, D. C., and at Alexandria, Va., just across the line from the city.

"While there has been a reduction in the number of beetles in the central area, nevertheless injuries to fruits which were not sprayed continued to be severe. The late appearance of the beetles in 1928 enabled many growers to harvest the early ripening varieties of peaches before much loss was sustained. The damage to ornamental plants in the central area was much less evident than in 1927." (Loren B. Smith and C. H. Hadley.)

ASIATIC BEETLE

The Asiatic beetle (Anomala orientalis Waterh.) has been doing an increasing amount of damage in Connecticut and southern Long Island and at White Plains and New Rochelle, N. Y. It has also been collected at several new localities in northern New Jersey, the larvae causing complete destruction of sod on lawns and serious injury to such perennials as rose, hollyhock, iris, peony, and phlox. The larvae migrated from their winter quarters to the surface and resumed feeding about two weeks earlier than they did last year in the New Haven district, and during the summer adults were much more abundant than during any previous year.

Reports from Hawaii indicate that this pest, which at one time threatened the agriculture of those islands, has been so completely controlled by the introduction of Scolia manilae Ashm. that it is now a rare beetle on the islands.

ORIENTAL GARDEN BEETLE

"The Oriental garden beetle (Autoserica castanea Arrow) is now known to occur on Long Island and in Westchester County, New York, in northern and central New Jersey, eastern Pennsylvania to Harrisburg, and at Washington, D. C. One specimen was captured at New Haven, Conn.

During the past year this insect has caused considerable damage both as larvae and adults. The adult beetles are nocturnal and feed on a wide variety of plants including many of the ornamental plants growing in gardens on peaches and on vegetables. When the larvae become abundant in the turf they cause injury similar to that done by the Asiatic beetle.

Probably the most serious injury caused by this insect occurred in the vicinity of Douglastown, Long Island." (Loren B. Smith, Bureau of Entomology, U. S. D. A.)

APHIDS

In the Pacific Northwest the first aphids of the season were observed in Oregon on March 19. The rosy apple aphid (Anuraphis roseus Baker) in this region hatched about the middle of April. This early appearance, however, was not general, and as a whole the aphids in this region were very scarce up to the first week in May. This was true not only of the apple aphids but of those on peaches and plums. In the Bitterroot Valley of Montana late in the season the apple aphid (Aphis pomi DeG.) became unusually abundant.

Reports received from the East late in April indicated that an unusually small number of eggs had been laid last fall and subsequent reports confirmed the prognostication of a year of unusual low aphid abundance. The only exception to this condition seems to have been in the Fort Valley section of Georgia, where, in addition to the apple aphids, the rusty plum aphid (Hysteroneura setariae Thos.) was very injurious in this region and a very restricted though heavy infestation of peaches by the black peach aphid (Anuraphis persicae-niger Smith) was reported from Vienna, Va. During late May and early June aphids became decidedly more abundant in parts of Nebraska. These seem to have been the only outbreaks in a year of decidedly subnormal abundance of deciduous fruit aphids.

The spiraea aphid (Aphis spiraeicola Patch) on citrus in Florida was abnormally scarce early in the season, being less abundant than in any year since 1923. Cool, backward weather during April, however, resulted in a very rapid increase which continued through June. Heavy rains during July and the hurricane in August practically terminated this outbreak.

In California aphids started their work early in the season, attacking the new growth almost as soon as the buds broke. This led to an outbreak which necessitated very extensive spraying operations in the coastal citrus areas of southern California. Spraying and the very effective work of a syrphid fly and of an entomophthorous fungus practically eliminated this outbreak by the middle of April.

CODLING MOTH

The season as a whole was one of moderate to low abundance of the codling moth (Carpocapsa pomonella L.). Unfavorable weather conditions occasioned a winter mortality in the northern part of the eastern fruit belt that ran as high as 50 per cent of the overwintering larvae in central Illinois. Throughout the greater part of the East the season was decidedly late, the first pupa having been observed from a week to 10 days later than last year. This late emergence resulted in a reduction in the blossom injury and an increase in the side-worm injury. As a whole there was less damage this year than has been the case during the past two or three years over the greater part of the East. In the walnut-growing section of southern California the codling moth is evidently becoming an increasingly important pest.

ORIENTAL FRUIT MOTH

Along the Atlantic seaboard the oriental fruit moth (Laspeyresia molesta Busck) was less troublesome than last year. It emerged from hibernation considerably later than last year in the Georgia fruit belt. In the most recently infested area of southern Indiana and Illinois it has proved extremely destructive this year, at many points practically all of the fruit having been infested. In New Jersey the parasite Macrocentrus ancylivora Roh. is proving to be a very efficient agent in reducing infestations. This year, in the southern half of New Jersey, from 50 to 60 per cent of the larvae were parasitized. The accompanying map indicates the distribution of this insect thus far recorded. The doubtful records in Missouri and Arkansas are seriously questioned by the entomologists in these States and the records in Michigan are not at all certain, but the Dallas, Texas, record is from authentically determined material.

SAN JOSE SCALE

Throughout the entire eastern fruit areas the San Jose Scale (Aspidiotus perniciosus Comst.) has been decidedly below normal in abundance this year. Very high winter mortality was reported from the East Central States, running as high as 60 to 70 per cent in southern Illinois and approximately that high in southern Indiana. The emergence of "crawlers" was also late as compared with previous years.

EASTERN TENT CATERPILLAR

This has not been a year of abundance for the eastern tent caterpillar (Malacosoma americana Fab.). Reports, as usual, were received from practically the entire eastern part of the United States, but they indicated "spotted" infestations with no general or excessive abundance. Parasitism appears to have been somewhat higher in the New England region than was the case last year.

PLUM CURCULIO

Throughout the southern part of the Atlantic States the plum curculio (Conotrachelus nenuphar Hbst.) was about three weeks later than usual, producing in that region but a single generation. In the northern part of that area it emerged at about the normal date. As the season advanced this insect was observed to be subnormally abundant throughout the greater part of the Eastern States. Unfavorable weather conditions, however, in the Georgia fruit belt so interfered with effective spraying that by October an unusually heavy infestation had been built up.

PEACH BORER

Infestations of the peach borer (Aegeria exitiosa Say) were apparently heavier than usual in the Georgia fruit belt this year. The moths emerged decidedly later than last year in that district, and were collected on October 11 whereas usually the last individuals are seen on or before October 1. The late emergence extended westward across southern Illinois.



ORIENTAL FRUIT MOTH
KNOWN DISTRIBUTION TO DECEMBER, 1928



EUROPEAN RED MITE

The European red mite (Paratetranychus pilosus Can. & Fanz.) was not so troublesome this year over the Northeastern States as it has been the last few years. However, infestations were reported from practically all of the Northeastern States westward to Ohio.

CITROPHILUS MEALYBUG *

The citrophilus mealybug (Pseudococcus gahani Green) was decidedly less prevalent in the southern California citrus district than was the case last year. This is believed to be due in part to the systematic liberation of the predacious beetle Cryptolaemus montrouzieri Muls. A rather unusual condition was observed this year in Los Angeles County, for the mealybugs were found entering the apical opening of figs and developing within the fruit. Should this become an established habit of this insect it would have a very important bearing on the production of California figs, as fruit containing mealybugs would be difficult to detect by an external examination.

Another entomological factor that is beginning to affect the fig industry is fig endosepsis, which is now known to be carried by the Blastophaga an insect which is absolutely essential to the production of Smyrna figs.

WALNUT FLY

In 1918 A. I. Fabis, of the Bureau of Entomology, collected several weevils on walnuts at Brownwood and Pecan Bayou, Tex. This material was sent to the National Museum and later determined as Rhagoletis juglandis, described in 1919 by Cresson. The type material was collected in the Huachuca Mountains of Arizona on English walnut. In 1921 Dr. Hine sent in specimens collected at Manhattan, Kans. These were determined by Dr. Aldrich and returned. F. E. Brooks, in U. S. D. A. Bul. 992, says: "Rhagoletis juglandis Cress. has been recorded as attacking the nuts of Juglans rupestris and J. regia in Arizona and Texas." During the past two or three seasons English walnuts near Chinon on the Los Angeles - San Bernardino County line have been under suspicion of infestation by a husk maggot. This year specimens were sent to the National Museum and determined as this species.

RASPBERRY FRUIT WORM

"The raspberry fruit worm (Byturus unicolor Say) caused considerable damage in Washington again during 1928, especially to loganberries. It is known locally as the loganberry worm. The following counties in Washington had severe infestations: Pierce, King, Snohomish, Skagit, and Whatcom. I believe the damage was fully as serious as it was during 1927. In the vicinity of Mt. Vernon loganberry growers have been pulling out their vines because of their inability to dispose of the berries owing to the presence of the worms." (R. L. Webster, Washington State College.)

*ERRATUM-No 6, p. 224. Under Citrophilus mealybug. Following "H. M. Armistage in Charge of Insectary Operations" read "the Cryptolaemus beetles (C. montrouzieri Muls.) have been distributed over 8,000 acres of citrus to aid in the control of the citrophilus mealybug."

RASPBERRY SAWFLY

Throughout the raspberry section extending from New York into Ontario the raspberry sawfly (Monophadnoides rubi Harr.) did very considerable damage this year.

PEA APHID

"The infestation of the pea aphid (Illinoia pisi Kalt.) during 1928 on canning peas in Wisconsin was about normal. The peak of infestation (on July 7) was reached more quickly than in any of the past five years and in number of aphids in the fields was second only to the peak of 1925 which showed 1,860 aphids per 5 sweeps of a collecting net as compared with 1,517 collected this year. After the peak was reached, the infestation dropped more quickly than usual.

"The weather for this season was unusual. It was cool and rainy with much cloudy weather during May and June and a few warm periods of one day's duration. A definite change occurred on July 3 to warm, generally clear weather with cool nights, continuing with a few short exceptions throughout July. During May, June, and July it rained on 41 days with a total rainfall of 10.26 inches. Of this precipitation, 6.26 inches fell during the 16-day period from June 18 to July 3 inclusive. Only 0.23 inch fell in July after the third day. The definite change in weather on July 3 appeared to check the growth of peas and hasten maturity, which resulted in early and uneven maturity and general poor quality. The excellent growth condition of the vines in late June appeared to accelerate aphid reproduction remarkably. Then reproduction almost ceased and aphids began to disappear rapidly." (J. E. Dudley, Jr., Bureau of Entomology, U. S. D. A.)

Early in the season the pea aphid destroyed considerable alfalfa in the West Central, North Central, and Great Basin areas.

COLORADO POTATO BEETLE

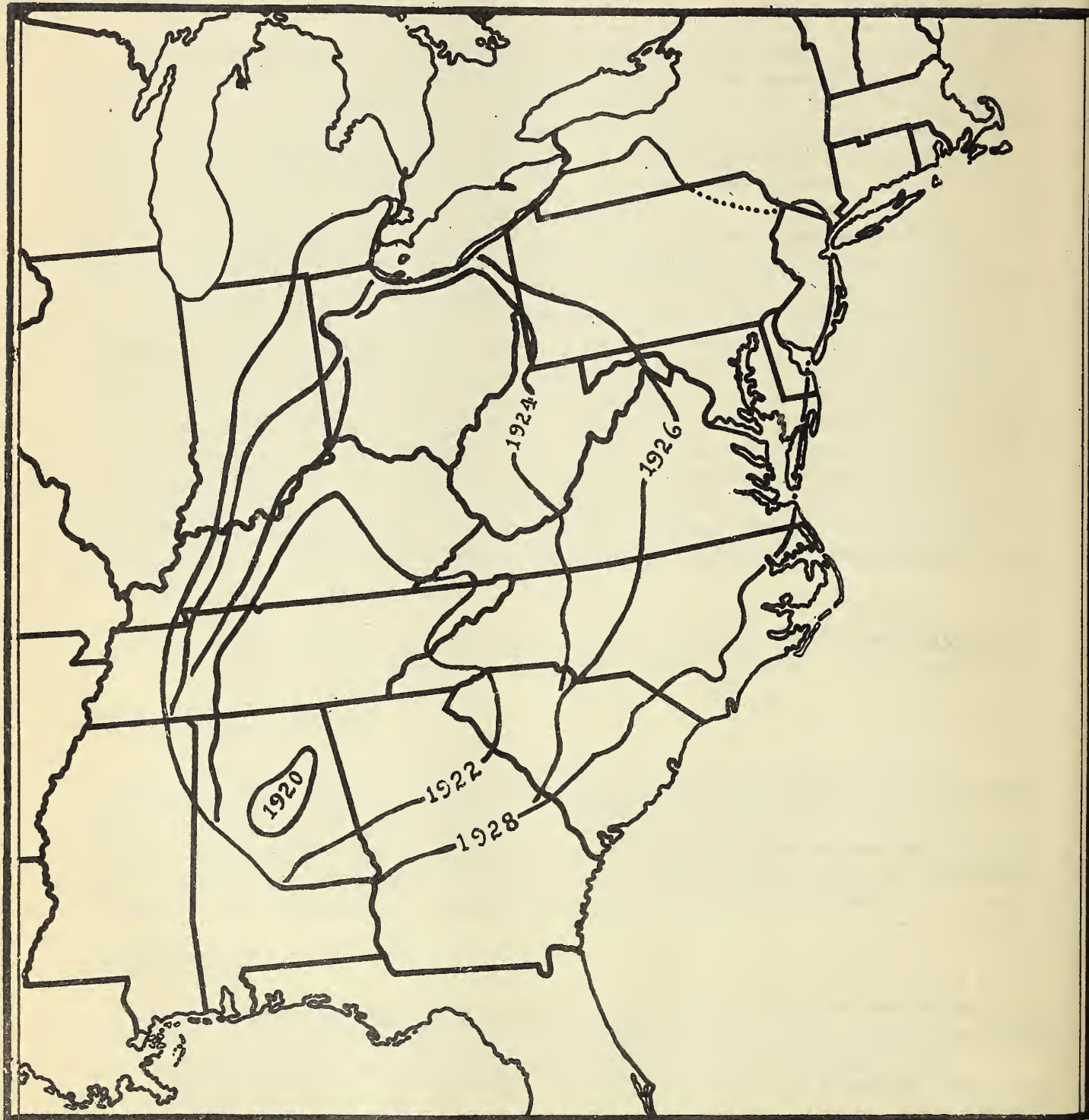
The Colorado potato beetle (Leptinotarsa decemlineata Say) was reported very early in the season as being unusually abundant in the Gulf region at Birmingham, Ala., Picayune, Lucedale, and Tupelo, Miss., and around Jacksonville, Fla., and later in the season there were indications that it would be extremely destructive in the Virginia trucking sections. Throughout the country as a whole conditions were not unusual.

HARLEQUIN BUG

The harlequin bug (Murgantia histrionica Hahn) was less numerous throughout the greater part of its range than during 1927. However, considerable damage was done in the early trucking sections of Alabama and Mississippi, and in North Carolina conditions seemed to be worse than usual. This insect appeared this year to be much more numerous in Alexandria County, Virginia, than it has been in many years.

MEXICAN BEAN BEETLE

Spread by two-year periods from 1920-1928



MEXICAN BEAN BEETLE

Although early indications were that the Mexican bean beetle (Epilachna corrupta Muls.) would be subnormally abundant in the originally infested areas in Alabama because of low winter survival, subsequent conditions offset the winter loss. The first adults appeared in Alabama 13 days later than last year. Surveys made late in the season indicated that this insect has advanced eastward about two tiers of counties in western New York State over the known distribution of last year and has entered the southeastern part of the State in Orange and Rockland Counties. It is recorded for the first time this year from the greater part of New Jersey, Delaware, and Maryland. In North Carolina this insect has reached the coast and in Indiana it has reached the northeasternmost corner of the State and has crossed over into Branch and Ingham Counties, Michigan. The extension of territory southward and westward has been negligible. (Largely compiled from monthly reports of N. F. Howard, Bureau of Entomology, U. S. D. A.)

ASPARAGUS BEETLES

Asparagus beetles (Crioceris spp.) are normally abundant throughout the Northeastern and East Central States and appear to be spreading slowly southward and more rapidly westward into Iowa and southern Illinois. This year Crioceris asparegi L. was reported as destructive in Ames, Muscatine, and Des Moines, Iowa, and as far south as Carbondale, Ill.

SEED CORN MAGGOT

During the last week in March the seed corn maggot (Hylemyia cilicrura Rond.) was reported as doing serious damage to winter truck in Mississippi. Late in April considerable damage was being reported from parts of Kansas. During July rather serious injury was reported to truck crops in the Lake region of New York State, and this insect appeared for the first time in five years as a serious onion pest in Wisconsin.

SWEET-POTATO WEEVIL

" The sweet-potato weevil (Cylas formicarius Fab.) in southern Mississippi and southern Alabama at this date appears to be under the best control of any period since the inception of the campaign of control and eradication.

" During the past two years actual loss to the ~~sweet~~-potato crop has been negligible. The area which has previously been found infested has not increased and a considerable reduction in number of infestations has been secured.

" In Pearl River County, Mississippi, the infested area which has been under constant supervision, has apparently been completely cleaned up. All of the farms in this area, so far as known, are free from weevils. However, ten new farms in an area 14 miles northwest of the Picayune area have just recently been found to be infested with this insect. These infestations are believed to have resulted from weevils having been trans-

ported from Louisiana, across the river, to these properties. In Hancock County, Mississippi, at present only five farms are known to be infested with weevils, whereas almost 200 had previously been infested.

"In Mobile County, Alabama, only eight properties have been found infested in the 1928 crop, while more than 100 farms were infested previously. In Baldwin County, Alabama, where approximately 70 farms were once infested no weevils were found during 1928." (K. L. Cockerham, Bureau of Entomology, U. S. D. A.)

SOD WEBWORM

About the middle of May sod webworms (Crambus spp.) were reported from central Indiana and were damaging corn in parts of Iowa. During June reports of considerable damage to corn, in some cases requiring replanting, were reported from Ohio, the greater part of Indiana, and Illinois. In the last-named State they were said to be more serious than in many years. Reports of less extensive injury were received from Wisconsin, southern Iowa, and Nebraska.

BEEF LEAFHOPPER

"During the season of 1928 the beef leafhopper (Eutettix tenellus Baker) was abundant in Utah, and curly-top was correspondingly prevalent. The severity of the damage varied greatly in different areas, Cache Valley and Utah County suffering, in general, only moderate damage, while some areas suffered considerable loss. Because of the serious loss from curly-top in past years, no beets were planted at Cache Junction, Grantsville, Leamington, Lynndyl, McCormick, and Mills, and many localities planted a smaller acreage than has been customary. Shortage of irrigation water and lack of summer rains were contributing factors to the reduced beet tonnage and to the pronounced curly-top symptoms." (G. F. Knowlton, Utah Agr. Exp. Sta.)

VEGETABLE WEEVIL

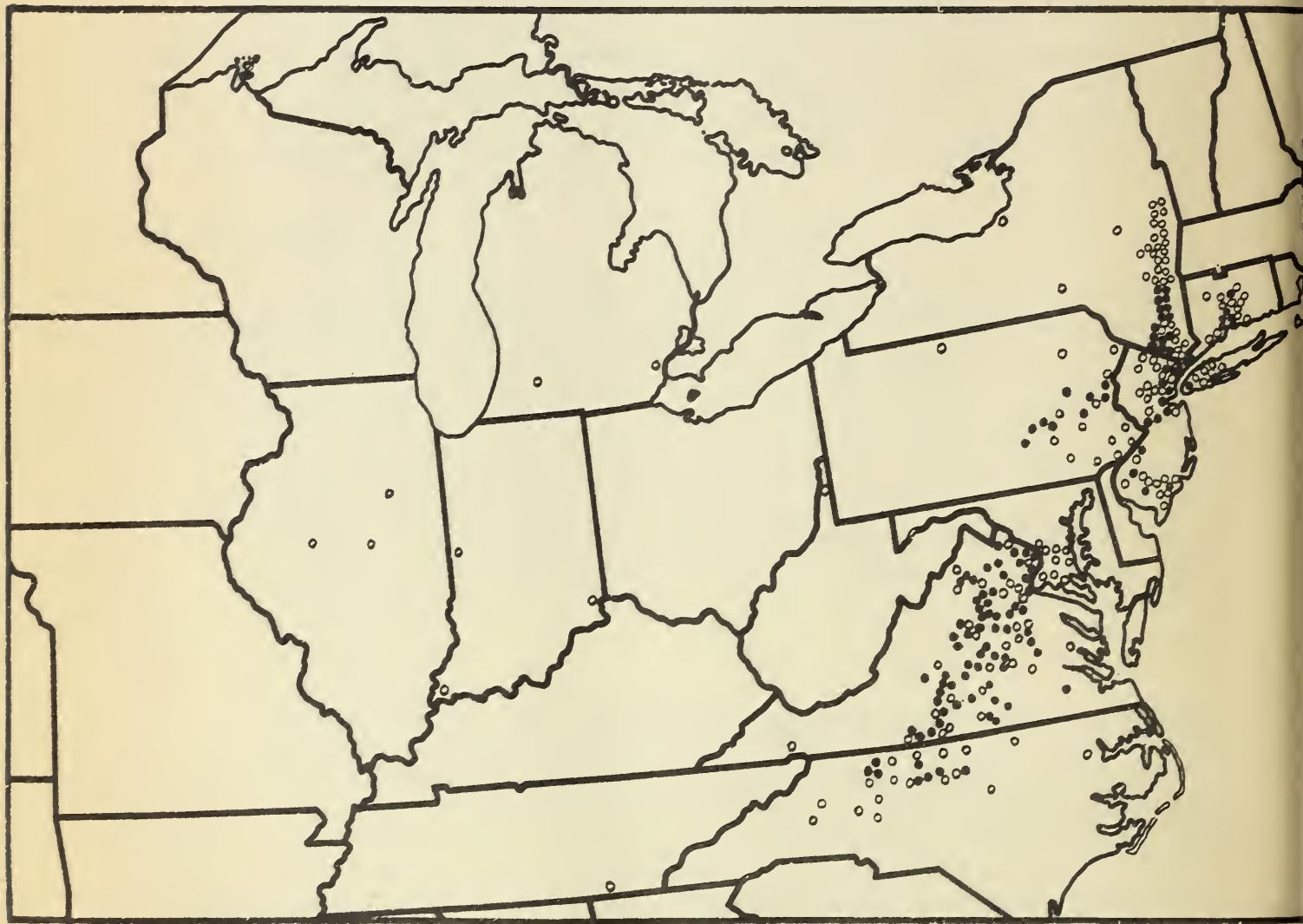
"The vegetable weevil (Listroderes obliquus Gyll.) has continued to move northward but its progress in spreading the past year has not been so rapid as in some former years. The weevil is now known to occur in 7 counties in Alabama, 8 parishes in Louisiana, 2 counties in Florida, and 40 counties in Mississippi. It is possible that the distribution is larger than here given, since it has been possible to do only a limited amount of scouting. The weevil was found in larger numbers during the summer months the past year than ever before, with the exception of some isolated localities along the coast where it was less plentiful than last year." (M. M. High, Bureau of Entomology, U. S. D. A.)

VELVET BEAN CATERPILLAR

The velvet bean caterpillar (Anticarsia gemmatilis Hbn.) was reported for the first time as a primary pest of peanuts, in Florida. It

PERIODICAL CICADA

Known distribution of Brood II up to and including its appearance in 1928.



Black dots indicate 1928 records

usually moves into peanut fields from infested velvet-bean fields after the latter have been harvested.

SOUTHERN ARMYWORM

A very heavy outbreak of the southern armyworm (Prodenia eridania Cram.), covering practically all of the Florida peninsula and the greater part of Georgia, North Carolina, and South Carolina, occurred this year. In addition to defoliating its native food plants it did much damage to castor bean, sweet potato, okra, tomato, pepper, and ornamental plants. This is the heaviest outbreak of this insect that has occurred since 1917.

SUGARCANE BORER

"Infestations of the sugarcane borer (Diatraea saccharalis Fab.) in Louisiana in 1928 were irregular and in most cases low. The percentage of bored stalks in individual fields examined varied from 3.5 to 98, with an average infestation of 27.5 per cent. It is necessary to go back to 1919 to find a year of similar low infestation. Examinations made in October as compared with those made in August show that often the damage mounted rapidly in the last part of the growing season. This was especially marked in sugarcane fields near corn fields, as the borer matures quickly and in large numbers in corn stalks, the resulting moths migrating to sugarcane fields when the corn stalks complete their growth and dry out" (W. E. Haley, Bureau of Entomology, U. S. D. A.)

CHILO SIMPLEX BUTL.

Early in the spring of this year larvae of Chilo simplex Butl. were found infesting rice plants near Honolulu, T. H., and by the end of May between 1,500 and 2,000 acres of rice were known to be infested, all confined to the Island of Oahu. This insect was first noted by Chinese growers in October, 1927. An idea of the severity of the infestation may be had from an examination made of two stools of rice collected in a heavily infested paddy. From these two stools between 40 and 50 moths emerged.

PERIODICAL CICADA (Brood II and Brood XXVII)

During the year 1928 the large Brood II of this insect (Tibicina septendecim L.) put in its appearance along the Atlantic Seaboard. This brood extends from west-central North Carolina along the Appalachian foothills and the piedmont and coastal plains sections across eastern Maryland, southeastern Pennsylvania, New Jersey, southeastern New York, and western Connecticut. A few doubtful records of the appearance of this brood have been made in the past outside of the territory named, one in Posey County, Indiana, one in Kalamazoo County, Michigan, and three from as many localities in Illinois. Not one of these scattered records has been verified by appearance in 1928, and it is highly probable that they are either the result of misdeterminations or of the appearance of accelerated individuals of Brood III, which appears in the Middle West the year after Brood II appears in the East.

Over the lower Mississippi Valley, occupying almost exactly the territory not occupied by the 17-year race of the periodical cicada, occurs a 13-year race. The appearance of this race every 13 years led to very considerable confusion of the broods in the early studies of the insect, made when all the broods were thought to be of 17-year occurrence. Of this 13-year race a very small and doubtful Brood XXVII is recorded by C. L. Marlatt (Bul. 71, Bur. Ent., p. 75) from Franklin County, Miss. This brood was first observed in 1902, and again in 1915 in the same county. In each case but few specimens were seen. In the latter year a few specimens were observed at Lake Chicot, Chicot County, and Helena, Phillips County, Ark. This year the only report received of this brood was a single specimen taken in a boll-weevil emergence cage at Yazoo City, Yazoo County, Miss. The only brood of any size from which this specimen could have been retarded is Brood XXVIII, which occurred in 1924. A retardation of four years is hardly in keeping with our general theory as to the appearance of these broods. These emergences are more easily accounted for by assuming that they are the last survivors of a disappearing brood that once flourished in that region before the advent of the white man.

The following list of localities, arranged by States and counties, is intended to be a complete record of all observations on the appearance of Brood II.

Connecticut

Fairfield; Hartford, Avon 1911, Berlin 1911, Bristol 1894, East Berlin 1894, Farmington 1877, 1894, and 1911, Hartford 1894, New Britain 1894, 1911, and 1928, Plainville 1894 and 1911, Rocky Hill 1911, Southington 1911 and 1928, West Hartford 1911, Windsor 1894; Litchfield; Middlesex, Cromwell 1911, Durham 1860, 1877, 1894, and 1911, Higganum 1894, Killingworth 1911, Middlefield 1894 and 1911, Middletown 1894 and 1911, Westfield 1894; New Haven, Branford 1894, 1911, and 1928, Cheshire 1911 and 1928, East Haven 1894 and 1911, Guilford 1894, 1911, and 1928, Hamden 1911 and 1928, Meriden 1877, 1894, 1911, and 1928, Mount Carmel 1894, New Haven 1894, 1911, and 1928, North Branford 1894, 1911, and 1928, North Guilford 1894, North Haven 1911 and 1928, Reeds Gap 1894, Wallingford 1894, 1911, and 1928, Woodbridge 1928.

District of Columbia

Hope Hill 1894, Naval Observatory 1894, Rock Creek Zoological Park 1894.

Illinois

De Witt, Clinton 1911; Livingston, Fairbury 1894; Mason 1877.

Indiana

Dearborn; Fountain, Silverwood 1911; Posey, Mount Vernon 1894.

Maryland

Anne Arundel 1894; Near head of South River 1928; Calvert; Charles, Hughesville 1911, Popes Creek 1911; Montgomery, Glen Echo 1911; Prince Georges, Seat Pleasant 1894, Westwood 1894; Saint Marys.

Michigan

Kalamazoo; Wayne, Detroit (Woodmere Cemetery) 1894.

New Jersey

Atlantic, Atlantic City 1894, Bargaintown 1928, Egg Harbor City 1894, Hamonton 1894, Landisville 1877, Mays Landing 1860, Somers Point 1860; Bergen, Allendale 1894, Closter 1928, Fort Lee 1911, Glen Rock 1928, Highwood 1911, Hohokus 1894, Mahwah 1894, Maywood 1894, Midland Park 1877 and 1894, Park Ridge 1894, Ridgewood 1894, Waldwick 1894, Wortendyke 1894; Burlington, Moorestown 1894 and 1928; Camden, Camden 1894; Cape May, Woodbine 1894; Cumberland, Vineland 1894 and 1928; Essex, Avendale 1894, Bloomfield 1894, Hilton 1877 and 1894, Maplewood 1928, Montclair 1894, Newark 1877 and 1894, New Brooklyn 1894, Orange 1877, 1894, and 1911, South Orange 1877 and 1894, Upper Montclair 1928; Gloucester, Franklinville 1894, Glassboro 1928, Newfield 1877 and 1894; Hudson, Bayonne 1894; Mercer, Princeton 1928; Middlesex 1894, Carters 1928, New Brunswick 1877 and 1928; Monmouth, Matawan 1860; Morris, Budd Lake 1894, Gillette 1894, Morristown 1809, 1826, 1843, 1860, 1877, and 1894; Passaic, Hawthorne 1894, Midvale 1894, Passaic 1894, Paterson 1894, Pompton 1894; Salem 1894; Somerset; Basking Ridge 1894, Middlebush 1860 and 1877; Sussex, Franklin 1894, Hamburg 1894; Union, Elizabeth (town) 1741, 1758, 1775, 1792, and 1877, Netherwood 1894, Plainfield 1860, 1894, and 1928, Roselle 1877 and 1894, Scotch Plains 1928, Springfield 1894 and 1928, Summit 1911, Westfield 1894 and 1928.

New York

Albany, Albany 1860, Berne 1894, Bethlem Center 1894, Clarksville 1911, Coeymans 1911, Dunnsville 1911, Feura Bush 1911, Kenwood 1911, Menands 1911, New Scotland 1894, Normansville 1911, Ravena 1911, Voorheesville 1894; Bronx, West Farms 1860, 1877, and 1894; Chenango, Greene 1894; Columbia 1928, Claverak 1911, Ghent 1911, Hillsdale (Kopake Falls) 1911, Kinderhook 1911, Niverville 1911, North Chatham 1911, North Germantown 1911, Stuyvesant Falls 1911, Stockport 1911, West Taghkanic 1911; Dutchess, Annandale 1911 and 1928, Arlington 1911 and 1928, Bangall 1911, Barrytown 1894, 1911, and 1928, Camelot 1911, Chelsea 1911, Dutchess Junction 1911, Fishkill Landing 1911, Hyde Park 1911, New Hamburg 1911 and 1928, Poughkeepsie 1911 and 1928, Pleasant Valley 1928, Red Hook 1911, Rhinebeck 1928, Rhinecliff 1911, Staatsburg 1911, Tivoli 1894, 1911, and 1928; Greene, 1928, Alsen 1911, Athens 1911, Cairo 1911, Catskill 1894, East Durham 1894, Greenville 1843, Leeds 1911, Morrison Hill 1911, New Baltimore Station 1911, West Athens 1911, West Coxsackie 1911; Kings, Brooklyn (Prospect Park)

1894, Flatbush 1928; Montgomery, Fonda 1877, 1894, and 1911; Nassau, Garden City 1911; New York, Bronx 1911, (Central Park) 1894, Fort Schuyler 1911, Morris Park 1894; Orange, Balmyville 1911 and 1928, Bear Mountain Park 1928, Bellvale 1928, Bodine's Bridge 1911, Campbell Hall 1894; Cornwall 1894, 1911, and 1928, Craigville 1928, Crystal Run 1928, East Valley 1928, Edenville 1928, Fort Montgomery 1911, Goshen 1911 and 1928, Greenwood Lake 1928, Hamptonburg 1928, Highland Falls 1911 and 1928, Leptondale 1911, Little Britain 1928, Middlehope 1911 and 1928, Middletown 1894 and 1911, Monroe 1928, Mountainville 1911 and 1928, Newburgh 1911 and 1928, New Windsor 1843, 1860, 1877, 1894, and 1928, Pine Hill 1928, Pine Island 1928, Rock Tavern 1928, Roseton 1928, Sloatsburg 1928, Sugar Loaf 1928, Tuxedo Park 1928, Vail Gate 1928, Walden 1928, Warwick 1894, 1911, and 1928, Washingtonville 1928, West Point 1877, 1894, 1911, and 1928, Woodbury 1928; Oswego, Oswego 1894; Putnam, Cold Spring 1860, 1877, and 1911, Garrison 1911, Storm King 1911; Queens 1758 and 1894; Benasselaer, Bath-on-the-Hudson 1894, Castleton 1911, East Greenbush 1877 and 1911, East Schodack 1911, Elliot's Station 1877, 1894, and 1911, Lansingburg 1911, Maple Beach Park 1911, Nassau 1911, Reynolds 1911, Schaghticoke 1911, Schodack Center 1911, Troy 1894; Richmond 1877, Greatkills 1911 and 1928, Rossville 1911, South Beach 1894, Tottenville 1928, West New Brighton 1911; Rockland, Haverstraw 1911 and 1928, Tona Island 1911, Nyack 1894, 1911, and 1928, Spring Valley 1877 and 1894, Suffern 1911, Tallman 1894, Valley Cottage 1928; Saratoga, Mechanicville 1911, Schuylerville 1911, Stillwater 1911; Suffolk, Huntington 1894, Wyandanch 1911; Sullivan, Livingston Manor 1877; Ulster, Clintondale 1911, Ellenville 1894 and 1911, Esopus 1911, Highland 1911 and 1928, Kingston 1894 and 1928, Lake Minnewaska 1894, Malden 1911, Marlboro 1911 and 1928, Milton 1894, 1911, and 1928, New Paltz 1911 and 1928, Fort Ewen 1911, Saugerties 1843, 1860, 1877, 1894, and 1911, Wallkill 1911, West Camp 1911; Washington, Easton 1894, Thomson 1877 and 1911; Westchester 1877, Baychester 1894, Bronxville 1894, Croton 1911, Dobbs Ferry 1911, Katonah 1911, Lowerre Summit 1911, Mount Vernon 1911, New Rochelle 1894, 1911, and 1928, Ossining 1911, Park Hill 1911, Peekskill 1894 and 1911, Pelham 1894 and 1911, Pelhamville? 1894, Scarborough 1894 and 1911, Tarrytown 1911.

North Carolina

Alamance, Burlington 1894 and 1928, Haw River 1928; Bertie?; Burke, Morganton 1894; Caldwell, Yadkin Valley 1877; Caswell 1894; Davie, Farmington 1894; Forsyth 1928, Craters 1894, Salem Chapel 1894; Granville 1843, 1860, and (northeastern part) 1894; Guilford, Greensboro 1928, Guilford 1928, Guilford College 1894, New Garden? 1877; Iredell, Elmwood 1894; Orange, Hillsboro 1928, Rock Spring 1894; Rockingham, Leaksville 1894, Wentworth 1928; Rowan, Salisbury 1894; Stokes, Saxon 1877 and 1894; Surry, Boyden 1894, Copeland 1928, Dobson 1894 and 1928, Fairview 1928, Pilot Mountain 1928, Rockford 1928; Wake?; Warren (southeastern corner) 1894; Yadkin 1894 and 1928.

Pennsylvania

Berks, Hamburg 1894; Bucks; Carbon 1877, Palmerton 1928; Chester;

Dauphin, Dauphin 1928, Williamstown 1928; Delaware; Lancaster 1928; Lebanon; Lehigh, New Tripoli 1928; Luzerne, Hazleton 1928; Monroe 1877, Saylorsburg 1928, Stroudsburg 1911; Montgomery; Northampton, Windgap 1928, Youngs 1894; Philadelphia; Pike 1877; Potter, Shinglehouse 1894; Schuylkill, Minersville 1860, 1877, and 1894, Pine Grove 1894 and 1928, Pitman 1928; Wyoming.

Tennessee

Hamilton, Chattanooga 1860 and 1894.

Virginia

Alexandria (Ind. City) 1928; Albemarle 1911, Charlottesville 1894, Ivy 1894 and 1928, Moormans River 1928, Proffit 1928, Rio 1894; Amherst 1809, 1826, 1843, 1860, 1877, 1911, Madison Heights 1928, Sandiges 1894; Appomattox 1911, Evergreen 1928; Arlington, Barcroft 1911, Cherrydale 1928, Clarendon 1911 and 1928, Fort Myer 1928, Four Mile Run 1894, Halls Hill 1894, Lyon Park 1928, Rosslyn 1928; Bedford, Big Island 1894 and 1928; Buckingham, Buckingham 1894 and 1928, Dillwyn 1928, New Canton 1928; Campbell Altavista 1928, Brookneal 1928, Concord Depot 1928, Fairview Station 1928, Kew 1894, Lawyers 1928, Lynchburg 1911 and 1928; Caroline, Golansville 1894; Charlotte, Charlotte C. H. 1928, Redoak 1911; Chesterfield, Bon Air 1911; Culpeper, Carlin (Spring) 1894, Culpeper 1894 and 1928; Cumberland 1877, Cartersville 1928, Tally 1911; Fairfax, Accotink 1928, Fairfax 1928, Mount Vernon 1860; Fauquier, Catlett 1860, 1877, and 1894, Markham 1928, The Plains 1928, Warrenton 1911 and 1928; Fluvanna 1894, Bromo Bluff 1928; Goochland 1860, 1877, and 1894, Sandy Hook 1928; Hanover, Ashland 1928, Hewlett 1894, Montpelier 1928, Oliver 1894; Henrico 1911, Richmond 1877, 1894, and 1928; Henry 1894, Axton 1928, Martinsville 1928, Preston 1860 and 1877; James City, Toana 1877 and 1894; Loudoun, Aldie 1928, Hamilton 1928, Leesburg 1877 and 1894; Louisa, Buckner 1928, Louisa 1894 and 1928; Lunenburg, Kenbridge 1928, Meherrin 1928, Oral Oaks 1826, 1843, 1860, 1877, and 1894; Madison, Brightwood 1928, Madison 1928, Nethers 1928, Pratts 1928; Mecklenburg, Boydton 1911 and 1928, Chase City 1911 and 1928; Nelson, Afton 1928, Faber 1928; Orange, Gordonsville 1911 and 1928, Montpelier 1928, Orange 1911 and 1928, Somerset 1928; Page, Kimball 1928, Luray 1928, Massanutton 1843; 1860, 1877, and 1894, Rileyville 1928; Pittsylvania, Chatham 1928, Danville 1860, 1877, and 1911, Elba 1896, Galveston 1860, 1877, and 1894, Gretna 1928, Pittston 1843, 1860, 1877, and 1894, Whitmell 1928; Powhatan, Jefferson 1894 and 1928, Powhatan 1928, Sublette 1877 and 1894; Prince Edward, 1843, 1860, 1877, and 1894, Hampden Sidney 1928, Rice 1928; Prince William, Quantico 1928; Rappahannock, Flint Hill 1928, Woodville 1894; Shenandoah, Seven Fountains 1911; Spotsylvania, Chancellor 1928, Fredericksburg 1928, Massaponax 1928, Spotsylvania 1860, 1877, 1894, and 1928; Stafford, Berea 1894, Falmouth 1911 and 1928, Lolland 1911, Tackett Mills 1860, 1877, and 1894; Sussex, Wakefield, 1928; Washington, Abingdon 1894.

West Virginia

Brooke, Wellsburg 1894.

WHITE-MARKED TUSSOCK MOTH

The white-marked tussock moth (Hemerocampa leucostigma S. & A.) was not reported as abnormally abundant from any considerable area throughout its range. However, an interesting record came from Bangor, Maine, where it was quite conspicuous for the first time in a number of years.

BAGWORM

The situation as regards the bagworm (Thyridopteryx ephemeraeformis Haw.) in the Mississippi Valley and the East Central States has not materially changed from last year. This insect is still apparently on the increase in Ohio. Parasitism seems to be increasing in Missouri and in the remainder of the territory the infestations remain about the same as last year. Serious damage was reported from South Carolina this year.

GIPSY MOTH

"The project of exterminating the gipsy moth (Porthetria dispar L.) in New Jersey has been continued by the State of New Jersey in cooperation with the Federal Government. The area requiring treatment has been greatly reduced and the intensity of the infestation decreased from over 3,000,000 egg clusters to less than 100 egg clusters. No defoliation or damage to trees has occurred in New Jersey since the first summer's (1920) work and there is every prospect that finally this infestation will be exterminated.

Since the establishment of the barrier zone in eastern New York and western New England in 1923 and 1924 the gipsy moth conditions within the zone have gradually improved as a result of the intensive work which has been carried on by the Conservation Commission of the State of New York and by the United States Department of Agriculture. A statement of the conditions east of the zone is not so encouraging, for this insect has gradually increased in abundance since 1924, when it caused a smaller amount of defoliation than at any time for approximately twenty years. Since then the acreage defoliated in New England has increased from about 800 acres to over 262,000 acres during the summer of 1928. In addition to this great increase in abundance it has spread toward the barrier zone and several serious infestations are present between the eastern boundary of the zone and the Connecticut River. This has necessitated a change in the quarantine regulations on account of the gipsy moth and several towns have been added to the area designated as generally infested. Under the present conditions the problem of keeping the barrier zone clean and free of infestations is a most difficult one, and unless the heaviest infestations between the Connecticut River and the eastern boundary of the zone are treated, the zone itself will become reinfested." (A. F. Burgess, Bureau of Entomology, U.S. D. A.)

BROWN-TAIL MOTH

"The situation with regard to the brown-tail moth (Nygmia phaeorrhoea Donovan) has remained about the same for several years, but there has been a slight increase in abundance in parts of Massachusetts during the past year.

It has not been abundant over most of the infested area but in several towns severe defoliation of neglected apple orchards has occurred." (A. F. Burgess, Bureau of Entomology, U. S. D. A.)

ORIENTAL MOTH

"The oriental moth (Cnidocampa flavescentis Walk.) was abundant during the summer in several localities in the suburbs of Boston. No intensive work to determine the dispersion of this insect was done by the Federal forces, but occasional observations showed no great amount of spread. It was reported during the summer causing damage in several towns, including Winthrop, Everett, and Weymouth, and was observed as far north as Saugus and Salem." (A. F. Burgess, Bureau of Entomology, U. S. D. A.)

SATIN MOTH

During the past season the satin moth (Stilpnotia salicis L.) has made extensive advances along the periphery of the infested area. It has advanced northeastward into Penobscot County, Maine, westward to the eastern border of Vermont in Windsor and Windham Counties, to within one county of the western border of Massachusetts, and half way across the State of Connecticut. Last year this insect extended as far west as Nashua, N. H., Leominster, Mass., and Providence, R. I. Poplar and willow trees were severely defoliated in a large part of the infested territory.

BARK BEETLES

"The epidemics of the western pine beetle (Dendroctonus brevicornis Lcc.) which in 1927 reached unprecedented proportions in southern Oregon and northeastern California, show a marked decline this year. On a large area in northeastern California centering around the Modoc National Forest this insect destroyed approximately 1 per cent of the stand in 1921. The infestation gradually increased until in 1927 about $3\frac{1}{2}$ per cent was destroyed. Practically 10 per cent of the volume of timber on the surveyed area, or roughly some 500,000,000 board feet, was destroyed. Our surveys in the summer of 1928 show that the losses will be less this year than in any year since 1921. The exact figures on the extent of the decline are not yet available.

"The infestation of the mountain pine beetle (Dendroctonus monticolae Hopk.) in lodgepole pine, which has been progressing southward along the Continental Divide since 1909, has for the past two years been centered on the Bitterroot National Forest of Montana. The control project initiated by the Forest Service in the Bighole Basin in an attempt to keep this epidemic from spreading to the east side of the Continental Divide and into the Madison, Gallatin, and Targhee National Forests will have to be abandoned. The beetles have continued to spread into the zone of defense in such numbers that the attempt to check their advance is hopeless.

"An epidemic of the Black Hills Beetle (Dendroctonus ponderosae Hopk.) on the Colorado National Forest has completely subsided owing to the effective control measures carried out.

"Outbreaks of the southern pine beetle (Pendroctonus frontalis Zimm.) in the Southeast this year have been extremely rare, as is usual in years of normal precipitation." (F. C. Craighead, Bureau of Entomology, U. S. D. A.)

GREAT BASIN TENT CATERPILLAR

"A widespread epidemic of the Great Basin Tent caterpillar (Malacosoma fragilis Stretch) occurred during the past summer on the eastern slopes of the Sierra and Cascade Mountains. Over thousands of square miles the shrubby vegetation was completely stripped, thus destroying the usual browse of sheep grazed in this area and in many cases causing serious losses in revenue in grazing fees and in money expended in the purchase of supplementary feed for the animals." (F. C. Craighead, Bureau of Entomology, U. S. D. A.)

SPRUCE BUDWORM

"The spruce budworm (Harmoloba fumiferana Clem.) has been especially destructive along the Shoshone River just east of Yellowstone National Park on an area of over 100,000 acres and on the Santa Fe National Forest in New Mexico. In the southwestern corner of Yellowstone National Park along the Bechler River over an area involving many square miles the lodgepole pine has been completely stripped by the spruce budworm. Although this insect has been recorded from pine before, such an extensive defoliation is unique." (F. C. Craighead, Bureau of Entomology, U. S. D. A.)

PHLEBATROPHIA MATHESONI MACGIL.

"A new birch leaf miner (Phlebatrophia mathesoni MacGil.) has been unusually abundant throughout portions of Maine during the past summer. This insect is more in evidence than it has been in any previous year and has attracted a great deal of comment." (F. C. Craighead, Bureau of Entomology, U. S. D. A.)

This insect was originally described by MacGillivray in 1909 from numbers of female larvae collected in New Glasgow, Nova Scotia.

TERMITES

"Termites have continued their serious damage to the woodwork of buildings in the Southeastern, Gulf, Central Western, and Southwestern States, as well as in California. The Bureau's recommendations for the inclusion of certain provisions for prevention of termite damage in the mandatory section of city building codes are receiving favorable consideration in all sections of the country, but the actual adoption of these suggestions, involving the modification of city building codes, will take many years to put into effect." (F. C. Craighead, Bureau of Entomology, U. S. D. A.)